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The embodiment shown in Figs. 12-16 discloses a carpenter level 50 with a pair of vials 1.

The carpenter level in Fig. 12 is the same as the carpenter level in Fig. 6 with the same parts referred to by the same reference characters. However, the notches 60 in opening 53 are wide enough to accommodate two vials 1 side-by-side and have a wider outer edge 61 with opposed side edges 62 at right angles to the outer edge 61. Each vial 1 has keys 57 similar to keys 57 in Fig. 6-12 extending from one side of the vial adjacent the open end 6 and curved flanges 65 extending from the other side of the open end 6. The curved flanges 65 extend in opposite directions from each other and opposite to the direction of the keys 57. Each flange 65 has a straight wall 66 tangent to the outer wall 3 of the vial 1 and on the same plane as the side wall 58 of the keys 57. Each flange 65 also has a curved surface 67 extending from the edge of the straight wall 66 to the outer wall 3 of the vial 1 and conforming to the curvature of said outer wall 3. The curved flanges 65 of one vial 1 abut against the curvature of the other vial that is next to it so as to orient the two and prevent them from rolling relative to each other. The two vials 1 are placed side-by-side in the notches 61 so that they fit snugly in the notches 61. They are placed in reverse position so that the keys 57 and flanges 65 at the end of one vial are opposite the keys 57 and flanges 65 at the end of the other vial. Hence, cap end 7 of one vial will lie opposite the end cap 7 of the other vial. When the two vials 1 are placed side-by-side in notches 61 with the closed ends 5 facing in opposite directions, the flanges 65 will properly locate the vials 1 in the notches 61 with respect to the rails 52 and the flanges 65 will orient the two vials with respect to each other.

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3. A vial as set forth in Claim 2, wherein the apex of the curved inner cavity is closer to the cylindrical outer wall of the vial than the opposed of the inner cavity.

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9. A vial comprising an outer wall, said outer wall being straight and cylindrical, an inner cavity, said inner cavity being curved, said inner cavity being curved in a substantially uniform arc having an apex, opposed ends spaced from the apex and opposed spaced sides at an angle of 90 degrees from the apex, the apex of the curved inner cavity is closer to the cylindrical outer wall of the vial than the opposed ends of the inner cavity, the said cavity is substantially uniform in cross section throughout its length, planes tangent to the sides of the cavity are parallel to each other and at right angles to a plane tangent to said apex, one end of said cavity terminates in an end wall, the other end of said cavity is open and wherein a cap is adapted to close the said open end, the other end of said cavity is open and a pair of keys extend from the outer wall of said vial adjacent said open end, said keys extending in opposite directions from each other, each of said keys have edge and side walls at right angles to each other, said walls being tangent to the outer wall of the vial with one of said walls being parallel to the plane tangent to the apex of the cavity.

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13. A level having a pair of opposed parallel rails, a web perpendicular to said rails and connecting the rails together, a vial-receiving opening in said web, said vial-receiving opening having opposed notches therein, said opposed notches having an end wall and spaced side walls at right angles to said end wall, at least one vial mounted in said vial-receiving opening, the opposed ends of the vial being mounted in the opposed notches, said vial comprising an outer wall, said outer wall being straight and cylindrical, an inner cavity within said vial, said inner cavity being curved.

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20. A level as set forth in Claim 19, wherein a pair of keys extend from the outer wall of said vial adjacent said open end, said keys extending in opposite directions from each other, said keys adapted to be received in the opposed notches.

43. A method of making a vial having an outer wall and an inner cavity comprising the steps of forming the outer wall in a straight cylindrical configuration, forming the inner cavity of the vial in a curve, said inner cavity and the outer straight cylindrical wall being formed simultaneously, the inner cavity being formed curved in a substantially uniform arc having an apex with opposed ends spaced from the apex and with opposed spaced sides at an angle of 90 degrees from the apex, the apex of the curved inner cavity is formed closer to the cylindrical outer wall of the vial than the ends of the inner cavity, the said cavity is formed substantially uniform in cross section throughout its length, planes tangent to the sides of the cavity are formed parallel to each other and at right angles to a plane tangent to said apex, one end of said cavity is formed terminating in an end wall, the other end of said cavity if formed open, a pair of keys are formed extending from the outer wall of said vial adjacent said open end, said keys extending in opposite directions from each other, each of said keys is formed with edge and side walls at right angles to each other, said walls being tangent to the outer wall of the vial, with one of said walls being parallel to the plane tangent to the apex of the cavity.